

Computing Technology

High-speed Encrypted InfiniBand Applications over the WAN

This work demonstrates InfiniBand (IB) over the wide-area network (WAN) at 2x Single Data Rates (SDR), using Obsidian's encrypted long-haul IB technology. This year, we are attempting to extend the NASA Ames supercomputing enclave to the SC09 show floor in Portland, thus enabling access to compute and storage cycles at Ames (including NASA's Pleiades supercomputer). We are utilizing bandwidth provided by both the NASA Research and Engineering Network (NREN) and 40-gigabit-per-second Cisco C-WAVE network.

Utilizing Obsidian's extension technology will allow NASA to securely extend and connect computing and storage

resources (in a cost-effective manner) over distances it was not envisioned to bridge, improving processing and visualization tasks. NASA scientists and engineers can leverage these resources for solving problems such as global climate change and other compute-intensive engineering problems. This technology may also minimize the need to retrofit or expand existing data centers.

InfiniBand over the WAN is taking advantage of recent deployments of high-speed WANs, such as 10, 40, and 100 gigabit-per-second networks. These new networks will soon start transporting Internet traffic, which impacts all aspects of our modern life, including the World Wide Web, e-mail, Facebook, Twitter, Hulu, and more.

This diagram depicts the network architecture used for this demonstration.

